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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/374,704 08/12/99 BAIRD

E 238/298

023620  
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HM22/0802

EXAMINER

FPPS, I

ART UNIT

PAPER NUMBER

1635  
DATE MAILED:

08/02/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

**Advisory Action**

Application No.

09/374,704

Applicant(s)

BAIRD ET AL.

Examiner

Janet L Epps

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--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 27 July 2001 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY** [check either a) or b)]

- a) ☐ The period for reply expires \_\_\_\_\_ months from the mailing date of the final rejection.
- b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
- ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☒ A Notice of Appeal was filed on 27 July 2001. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
- (b) ☐ they raise the issue of new matter (see Note below);
- (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
- (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_

3. ☒ Applicant's reply has overcome the following rejection(s): See Continuation Sheet.
4. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: see attached note.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: 20-24.

Claim(s) objected to: \_\_\_\_\_

Claim(s) rejected: 1-19, 25 and 26 for the reasons of record in the Official Action mailed 3-28-01.

Claim(s) withdrawn from consideration: \_\_\_\_\_

8. ☐ The proposed drawing correction filed on \_\_\_\_\_ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_
10. ☐ Other:

Continuation of 3. Applicant's reply has overcome the following rejection(s): The rejection of claims 1, 5, 9, and 25-26 under 35 U.S.C. 102(b) as anticipated by Bruice et al; and the rejection of claims 1, 4-5, 9-12, 14, 16, 18 and 25-26 under 35 USC 102(b) as anticipated by Swalley et al., Parks et al., and Trauger et al.

### DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### *Response to Arguments*

2. Claims 2-19 and 25-26 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Swalley et al., Parks et al. and Trauger et al. in view of Feng et al.

Applicant's arguments filed 7-31-01 have been fully considered but they are not persuasive. Applicants traverse the instant rejection on the grounds that there are no similarities between the chemical and functional properties of Proline and N-methylpyrrole or arginine and positively charged N,N dimethylamino-propylamide, or histidine and N-methylimidazole. However, contrary to Applicant's arguments, the prior art clearly teach that these amino acids, and amino acid moieties are functionally similar to the extent that polyamides that can bind DNA in a sequence specific manner can be designed by incorporating these compounds into said polyamide. For example, Parks et al. teach the design of a hairpin polyamide which specifically recognizes the sequence: 5'-(A,T)GG(A,T)<sub>2</sub>-3' in the minor groove of DNA, wherein said polyamide comprises a combination of N-methylpyrrole, N,N dimethylamino-propylamide, and N-methylimidazole residues. Additionally, Swalley et al. and Trauger et al. disclose polyamide molecules comprising a combination of N-methylpyrrole, N,N-dimethylamino-propylamide, and N-methylimidazole moities, wherein said polyamides are capable of binding the minor groove of DNA by a sequence specific mechanism. In like manner, Feng et al. describe polyamides comprising the residues: Gly, Arg, Pro, Arg, wherein said polyamides can be used to bind the minor groove of DNA molecules in a sequence specific manner. The prior art references

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described above teach a direct correlation between N-methylpyrrole, arginine, proline, N,N-dimethylaminopropylamide, and N-methylimidazole, and sequence specific binding of the minor groove of DNA.

Moreover, Applicants traverse the instant rejection on the grounds that “one of skill in the art would not have had a reasonable expectation of success in grafting these three amino acids (Arg, Pro, and Arg) onto the polyamides of Swalley et al., Parks et al., or Trauger et al. to provide the claimed invention.” Applicants argue that the Feng et al. reference indicates that multiple segments of the molecule are necessary to provide specific binding. However, contrary to Applicants arguments, Feng et al. teach that the sequence Gly-Arg-Pro-Arg is necessary for minor groove binding to DNA (Feng et al. page 348, paragraph 3). Furthermore, Feng et al. teach that deletion of either the Gly residue or the first Arg residue in the Gly-Arg-Pro-Arg sequence results in a complete loss of minor groove binding. Additionally, Feng et al. teach that presence of the Arg-Pro-Arg sequence in the *Drosophila* Engrailed is also responsible for minor groove binding. Therefore the prior art clearly provides a reasonable expectation of success for polyamides or polypeptides which comprise the sequence “Arg-Pro-Arg” to have the ability to bind the minor groove of a DNA molecule.

Furthermore, Applicants argue that the Examiner has inappropriately applied hindsight reasoning in the formulation of a *prima facie* case of obviousness in the instant case. In response to applicant's argument, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a

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reconstruction is proper. Such motivation was provided when the rejection was initially set forth and therefore provides for the proper reasoning to combine the prior art references.

***Allowable Subject Matter***

3. Claims 20-24 are allowable over the prior art of record or any combination thereof. The Swalley et al., Parks et al. and Trauger et al. and Feng et al. references only teach linear polyamide molecules, however, the instant claims read on 4 or more polyamide molecules linked in tandem by a hairpin bridge derived from  $\gamma$ -aminobutyric acid.

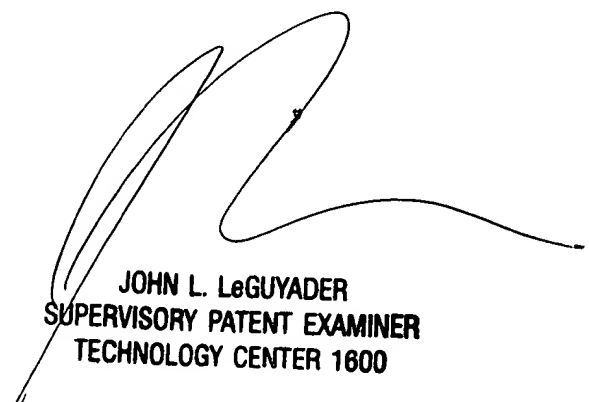
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janet L Epps whose telephone number is 703-308-8883. The examiner can normally be reached on Mondays through Friday, 9:00AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John LeGuyader can be reached on (703)-308-0447. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3014 for regular communications and 703-746-5143 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

Janet L Epps  
Examiner  
Art Unit 1635

jle  
August 2, 2001



JOHN L. LeGUYADER  
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